CLAIMS:

Claims 1-15 (Canceled)

16. (Amended) Process to simulate the response of a radiation detector (D) in detecting radiation emitted by radioactive objects (16), each object containing a radioelement or a mix of radioelements, comprising the steps of:

memorizing the radioactive emission spectra representative of the radioelements or mixes of radioelements;

determining the detection characteristics of the detector;

determining the operating characteristics of received radiation;

choosing the radioelements or mixes of radioelements from the radioelements whose radioactive emission spectra are memorized and which are representative of the content of the objects, and

carrying out a computer processing, using the detection characteristics of the radiation detector and the operating characteristics of the received radiation, to individually reproduce the radiation emitted, for the chosen radioelements or mixes of radioelements, and develop a simulated response of the radiation detector ~~according to claim 11~~, in which the objects are nuclear fuel elements (16).

17. (Amended) Process for the inspection of a set of nuclear fuel elements (16) comprising implementing the simulation process according to claim 16 further characterized by:

analyzing the real composition of any of the elements of ~~the assembly~~ said set of nuclear fuel elements;

calibrating the detector (D) using the element for which the real composition has been analyzed,

correcting the simulated response using the response of the detector obtained during calibration, and

inspecting ~~all~~ said set of elements.

18. (Original) Process according to claim 17, in which the nuclear fuel elements are nuclear fuel rods (16), which include stacks of pellets (5) of nuclear fuel.

19. (Original) Process according to claim 18, in which the detector (D) comprises an annular scintillator (1).

20. (Original) Process according to claim 18, in which the detector (D) comprises a sodium iodide scintillator (1).

21. (New) Process according to claim 16, in which the detection characteristics of the detector comprise data representative of the thickness through which the radiation passes before it is detected.

22. (New) Process according to claim 16, in which the operating characteristics of the received radiation include the operative angle of the radiation detector (D), detected energy bands and electronic amplification characteristics of the radiation detector.

23. (New) Process according to claim 16, in which regression straight lines are also built up starting from the simulated response.

24. (New) Process according to claim 16, in which the detector (D) is gamma γ radiation detector.